

What is Claimed is:

1. A microwave oven comprising:

a main cabinet having a plurality of air inlet openings and a plurality of air outlet openings, for accommodating and protecting various components;

5 an inner case provided in an upper space of the main cabinet to form a cooking chamber therein, the inner case having a plurality of inlet holes and outlet holes;

an outfit chamber in a rear part of a lower space of the main cabinet for fitting electronic components therein;

an inverter part in a front part of a lower space of the main cabinet;

10 a magnetron part in a side space of the main cabinet;

partition plates for separating a space for the inverter part, a space of the outfit chamber, and a space for the magnetron, respectively; and

15 a single fan device in a part in contact with the spaces in common for circulating external air to the spaces in the main cabinet.

2. The microwave oven as claimed in claim 1, wherein the air inlet openings are formed in a bottom surface, and a rear surface of a rear part of the main cabinet.

3. The microwave oven as claimed in claim 2, wherein the air inlet openings are in 20 communication with the outfit chamber.

4. The microwave oven as claimed in claim 3, wherein the air inlet openings are a plurality of slits.

5. The microwave oven as claimed in claim 1, wherein the air outlet openings are formed in a rear surface of the main cabinet.

5 6. The microwave oven as claimed in claim 5, wherein the air outlet openings are formed adjacent to the outlet holes in the inner case.

7. The microwave oven as claimed in claim 6, further comprising a frame between the rear surface of the main cabinet and the inner case for prevention of re-introduction of the 10 air passed through the outlet holes into an inside of the main cabinet.

8. The microwave oven as claimed in claim 1, wherein the air outlet openings are formed in a side surface of the main cabinet.

15 9. The microwave oven as claimed in claim 10, wherein the air outlet openings are formed to be in communication with the inverter part.

10. The microwave oven as claimed in claim 1, wherein the air outlet openings are formed in a side surface of front part of the main cabinet.

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11. The microwave oven as claimed in claim 1, wherein the inlet holes in the inner case are formed to be in communication with the space for the magnetron part.

12. The microwave oven as claimed in claim 11, wherein the inlet holes in the inner

case are formed in a side wall surface of the inner case adjacent to the space for the magnetron part.

13. The microwave oven as claimed in claim 1, wherein the inner case further
5 includes supplementary outlet holes in an upper surface of the inner case.

14. The microwave oven as claimed in claim 9, further comprising air outlet openings
in an upper surface of rear part of the main cabinet for discharging the air discharged through
the supplementary outlet holes.

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15. The microwave oven as claimed in claim 1, further comprising a frame projected
from a bottom circumference of the inner case, to separate a space of the main cabinet into a
lower space and an upper space, horizontally.

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16. The microwave oven as claimed in claim 15, wherein the frame has an opening in
a part adjacent to the inlet holes in the inner case.

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17. The microwave oven as claimed in claim 1, further comprising a frame projected
from a top circumference of the inner case to form a space between the main cabinet and the
inner case, additionally.

18. The microwave oven as claimed in claim 12, further comprising a lamp part in a
part the inlet holes are formed therein for illuminating an inside of the inner case.

19. The microwave oven as claimed in claim 18, wherein the lamp part includes;
a lamp, and
a holder for holding the lamp and guiding the air to the inlet holes.

5 20. The microwave oven as claimed in claim 1, further comprising a sensor part
provided to the outlet holes for detecting a moisture content of outlet air.

10 21. The microwave oven as claimed in claim 1, wherein the magnetron part includes;
a magnetron for emitting a microwave, and
a housing projected toward a side surface of the main cabinet for protecting the
magnetron and separating a side space of the main cabinet into a front space in
communication with the inlet holes in the inner case and a rear space.

15 22. The microwave oven as claimed in claim 21, wherein the housing blocks a gap
between a sidewall of the inner case and a sidewall of the main cabinet.

20 23. The microwave oven as claimed in claim 1, wherein the fan device includes;
a fan for blowing air to the space for the inverter part and the space for the magnetron
at the same time, and
a fan motor for driving the fan.

24. The microwave oven as claimed in claim 23, wherein the fan is located in a rear
part of the lower space of the main cabinet.

25. The microwave oven as claimed in claim 23, wherein the fan blows air both to the space for the inverter and the space for magnetron, partially.

26. The microwave oven as claimed in claim 1, wherein the partition plates include;

5 a first partition plate provided in a width direction to separate the space for the inverter part and the space of the outfit chamber, and

 a second partition plate provided in a length direction for partition the space for the magnetron.

10 27. The microwave oven as claimed in claim 26, wherein the partition plates further include a third partition plate provided in parallel to the first partition plate for forming an air passage to the space for the inverter part.

15 28. The microwave oven as claimed in claim 26, wherein the fan is provided to a part the first and second partition plates cross.

29. The microwave oven as claimed in claim 26, further comprising a flow guide formed in the space for the inverter part for guiding an air flow.

20 30. The microwave oven as claimed in claim 29, wherein an air discharge passage from the inverter part includes air outlet openings in a bottom surface of a front part of the main cabinet, and the flow guide is sloped for guiding air flow to the air outlet openings.

31. The microwave oven as claimed in claim 30, wherein the flow guide has a

predetermined curvature.

32. The microwave oven as claimed in claim 31, wherein a plurality of flow guides are provided.

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33. The microwave oven as claimed in claim 32, wherein the flow guides have different heights.

34. The microwave oven as claimed in claim 33, wherein the heights of the flow 10 guides become the lower as it goes the farther toward a side the inverter part is provided.

35. The microwave oven as claimed in claim 34, wherein the air discharge passage from the inverter part further includes air outlet openings in a side surface of a front part of the main cabinet.

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